INTEROPERABILITY

Meet Jun Murai, Internet Samurai

FUJISAWA, JAPAN–In 1984, when Nippon Telegraph and Telephone Corp. was about to deregulate its telephone network, computer scientists began talking about a national network. Committees were convened to discuss the Open Systems Interconnection reference model.

While they were meeting, a junior researcher named Jun Murai stuck a couple of modems on a telephone line and started using the UUCP (Unix-to-Unix copy program) protocols to transfer mail. The committees kept on meeting.

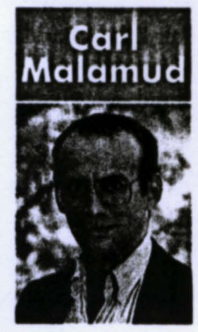
Over time, this little ad hoc network grew to several thousand nodes running TCP/IP. This informal effort, known as WIDE, is funded through Murai's research budget. Officially, it doesn't exist.

WIDE is a perfect example of how one person can help move a national infrastructure into place. WIDE takes corporate donations and student help and manages a national backbone that has a mix of commercial, research and educational traffic. No appropriate-use policies govern network usage.

To make the infrastructure useful, Murai did things like adapt the Unix operating system so that it would support Kanji characters. Usage on WIDE then started to grow exponentially.

Today, Murai is continuing to do research on expanding the network protocols, while trying to somehow manage a large operational network with a few graduate students.

Some of the more interesting current research involves integrated services digital networks. Japan has an operational, national ISDN infrastructure in place. The WIDE backbone is based on leased lines, but if a leased line goes down or there is too much traffic, the routers are able to activate a 64-kilobit-per-second "B" channel to handle overflow.



ISDN is so well-developed in Japan that Murai showed me a laptop with ISDN support. There are ISDN pay phones in Tokyo. You can take this laptop, walk into a pay phone, and join the Internet.

Another research project is the phone shell, which allows a user to perform any Unix operation from a phone booth. As Murai explains it, "I can go to a bar and drink beer. I get up and 'ping' my routers, and if they are still working, I go drink more beer."

WIDE is not the only network in Japan. The Ministry of Education has funded a network that tried for a long time to run OSI protocols. Recently, though, that network has adopted TCP/IP and will tie the universities into the WIDE backbone.

What makes WIDE significant is the volunteer nature and the wide connectivity. WIDE plugs Japan into the world infrastructure. The challenge for Murai and the Japanese networking community will be to move WIDE from being an ad hoc research project into a professionally managed network.

Murai would like nothing better than to see the network evolve to professional management. Keeping the network going means that his best graduate students are pinging routers instead of working in phone booths.

CARL MALAMUD HAS JUST PUBLISHED 'STACKS' (PRENTICE HALL, 1991), WHICH WAS FEATURED AS THE INTEROP BOOK AT THIS YEAR'S INTEROP CONFERENCE. THE VIEWS EXPRESSED ARE HIS OWN.

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